

Alg. 2 Warm Up #1-2

Warm Up sheets by the door.

1. Solve:

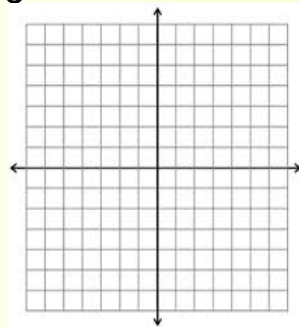
$$x^2 + 2x - 3 = 0$$

2. Solve and represent solution on a number line:

$$x^2 + 2x - 3 < 0$$

←————→ x

3. Graph: $y < x^2 + 2x - 3$



Review of Quadratic Inequalities

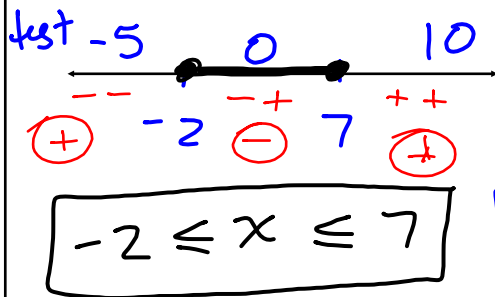
Solve in one variable: Find the x values that make the inequality true. (Like #2 from the warm up.)

- * Find critical numbers (boundary points) where the equation = 0.
- * Plot the critical numbers on a number line dividing the number line into sections.
- * Test a number in each section to find where the inequality is true.

Example:

Negative product
↓

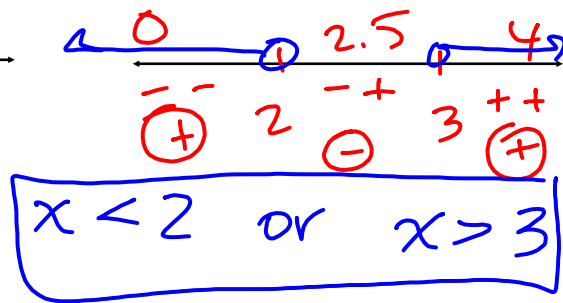
$$1) (x - 7)(x + 2) \leq 0$$



positive product
↓

$$2) x^2 - 5x + 6 > 0$$

$$(x - 3)(x - 2) > 0$$



Linear and Quadratic Inequalities in x and y :
Find the (x, y) coordinate pairs that make the inequality true. The solution will be a shaded region in the coordinate plane that may or may not include the boundary line or parabola.

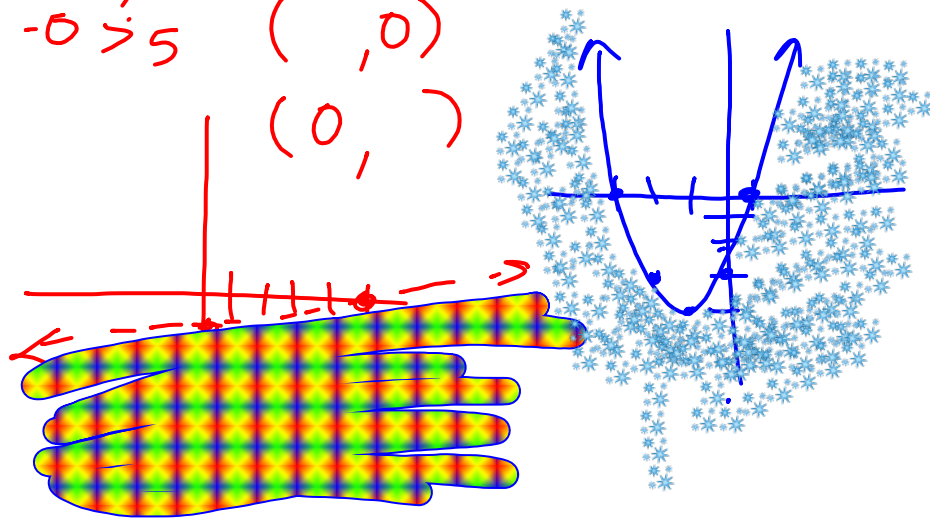
- * Graph the line or parabola; consider if it should be solid or dashed.
- * Test a point (x, y) clearly not on the line or parabola to see if it makes the inequality true.
- * Shade the solution region, where the inequality is true.

Example:

1) $x - 5y > 5$

$0 - 0 \overset{?}{>} 5$ $(\quad, 0)$
 $(0, \quad)$

$0 \overset{?}{\leq} (-1)(3)$
 2) $y \leq (x - 1)(x + 3)$



Classwork: Graphing Inequalities

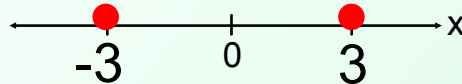
*Use quick graphing skills to accurately graph the boundary line or parabola.

$y = (x - h)^2 + k$ vertex at (h, k)

Review Absolute Value:

Using the definition of absolute value as the distance from zero on the real number line:

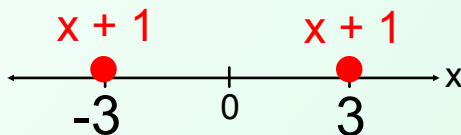
$|x| = 3$ means that the value of x is 3 units from zero on the number line



$$x = -3 \quad \text{or} \quad x = 3$$

**** Never +, -, x, or ÷, into or out of an absolute value symbol!!**

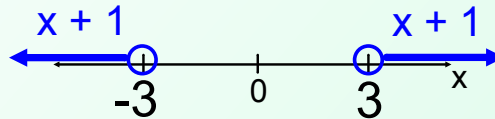
$|x + 1| = 3$ means that the value of $x + 1$ is 3 units from zero on the number line



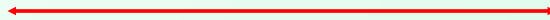
$$x + 1 = -3 \quad \text{or} \quad x + 1 = 3$$

**** Never +, -, x, or ÷, into or out of an absolute value symbol!!**

$|x + 1| > 3$ means that the value of $x + 1$ is **more than** 3 units from zero on the number line

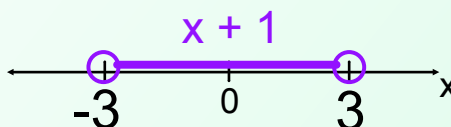


$$x + 1 < -3 \quad \text{or} \quad x + 1 > 3$$



**** Never +, -, x, or ÷, into or out of an absolute value symbol!!**

$|x + 1| < 3$ means that the value of $x + 1$ is **less than** 3 units from zero on the number line



$$-3 < x + 1 < 3$$

Alg 2 ebook:

<http://enroll.cpm.org>

Your website:

Go to South web page,
Faculty Sites, Math,
Nicholson

HW: Ch 4
homework WS #1

Get a book by tomorrow!

Core Connections
Algebra 2, Volume **One**